SUPPLEMENTAL PETITION

PURSUANT TO SECTION 126 OF THE CLEAN AIR ACT, 42 U.S.C. § 7426

To the United States Environmental Protection Agency for Relief From Unlawful Emissions from the Portland Generating Station in Upper Mount Bethel Township, Northampton County, Pennsylvania.

Submitted by the State of New Jersey

BOB MARTIN
Department of Environmental Protection Commissioner

Supplemental Petition Pursuant to Section 126 of the Clean Air Act to the United States Environmental Protection Agency for Abatement of Emissions From the Portland Generating Station in Upper Mount Bethel Township, Northampton County, Pennsylvania That Significantly Contribute to Nonattainment And/Or Interfere with Maintenance of National Ambient Air Quality Standards in New Jersey.

I. BACKGROUND

The State of New Jersey, through New Jersey Department of Environmental Protection (NJDEP) Commissioner Bob Martin, submits this petition pursuant to Section 126(b) of the Clean Air Act (CAA or Act), 42 U.S.C. § 7426(b), as a supplement to New Jersey's May 12, 2010 petition to the United States Environmental Protection Agency (USEPA) (May 12, 2010 petition).[1] The May 12, 2010 petition was also submitted pursuant to Section 126(b) of the Act.

New Jersey's May 12, 2010 petition demonstrates that air contaminant emissions from the Portland Generating Station (Portland Plant or Portland) significantly contribute to nonattainment and/or interfere with maintenance of the 24-hour and 3-hour sulfur dioxide (SO_2) and 24-hour fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS) in Knowlton Township, Warren County, New Jersey. This supplemental petition provides additional evidence that shows more egregious Section 126 violations under the more stringent 1-hour SO_2 NAAQS that the USEPA recently finalized.[2] As with the May 12, 2010 petition, through this supplemental petition, New Jersey seeks direct USEPA regulation of the Portland Plant and abatement of the unlawful transport of air emissions within, at a minimum, three years as mandated by Section 126, 42 U.S.C. § 7426.

II. THE USEPA'S NEW 1-HOUR SO_2 STANDARD

A. The USEPA Recently Set a Much More Stringent SO_2 Standard

The USEPA first set the SO_2 NAAQS in 1971, establishing the primary annual SO_2 NAAQS at 0.03 ppm (80 micrograms per cubic meter (ug/m^3)), primary 24-hour SO_2 NAAQS at 365 ug/m^3 (140 parts per billion (ppb)), and secondary 3-hour SO_2 NAAQS at 1300 ug/m^3 (500 ppb). *See* 36 Fed. Reg. 8186 (April 28, 1971); 40 C.F.R. §§ 50.4, 50.5. Under Section 109 of the Act, national primary ambient air quality standards are standards requisite to protect the public health, allowing an adequate margin of safety. 42 U.S.C. § 7409(b).

Recognizing that the prior 24-hour and annual SO_2 standards did not adequately protect the public against adverse respiratory effects associated with short term (5 minutes – 24 hour) SO_2 exposure, on June 3, 2010, the USEPA revoked the annual and 24-hour NAAQS (keeping the prior standards in place for one year) and set a new 1-hour standard at 195 ug/m^3 (75 ppb). 75 Fed. Reg. 35,581. The new standard was established in the form of the 99th percentile of the

[1] The petition may also be found at http://www.state.nj.us/dep/baqp/petition/126petition.htm.
[2] 75 Fed. Reg. 35,520 (June 22, 2010).

annual distribution of the daily maximum 1-hour average concentrations. 75 Fed. Reg. 35,550. The new 1-hour SO_2 NAAQS is much more stringent than the prior SO_2 NAAQS, considering both the shorter averaging time and the numerical difference. In setting this new standard, the USEPA found that it would likely increase public health protection. *Id.* The USEPA's "Final Regulatory Impact Analysis (RIA) for the SO_2 National Ambient Air Quality Standards (NAAQS)," Table 5.14, estimated that the new 1-hour standard would prevent 2,300-5,900 premature deaths and 54,000 asthma attacks a year. In the RIA, the USEPA also found that projected design values in 2020 for Northampton County would exceed the new 1-hour standard. Table 3a-1.

In the final rule, the USEPA further recognized the "strong source-oriented nature of SO_2 ambient impacts." 75 Fed. Reg. 35,370. In this regard, the Portland Plant emits significant quantities of SO_2 (over 30,000 tons per year, see http://camddataandmaps.epa.gov/gdm/[3]) and has no SO_2 controls. In addition, Portland sits in a river valley and its SO_2 emissions travel directly into the elevated terrain in New Jersey, causing significant adverse impact on New Jersey's air quality. For example, the USEPA concluded that five-ten minutes of exposure of 200 ppb SO_2 can cause adverse health effects in some asthmatics, and the same exposure of greater than or equal to 400 ppb SO_2 results in clear adverse effects in general (including decrements in lung function and increases in respiratory symptoms). *See, e.g.,* 75 Fed. Reg. 35,526. New Jersey's May 12, 2010 petition explains in more detail the overall adverse health and environmental effects from SO_2 emissions.

B. Requirements for States to Attain the New 1-Hour Standard

States must submit initial designation recommendations to the USEPA for the new 1-hour standard by June 2, 2011 and the USEPA will make final designations by June 2012. 75 Fed. Reg. 35,569. Portions of Warren County, New Jersey are designated nonattainment for the pre-existing SO_2 NAAQS. 40 C.F.R. § 81.331. There are only eight other areas in the country designated nonattainment for the pre-existing SO_2 NAAQS. *See id.* at 35,581, n. 41. NJDEP's supplemental modeling shows that Portland's emissions are causing nonattainment of and interfering with maintenance of the new 1-hour SO_2 standard in additional areas of Warren County and other areas in New Jersey and Pennsylvania. The USEPA is seeking state designation recommendations based not only on monitoring data but also on modeling because the USEPA has concluded that monitoring alone is inadequate to identify all areas of maximum SO_2 concentrations. *See, e.g., id.* at 35,570; *see also* 35,560 (USEPA expressing the "concern that the monitoring network is not large enough to account for all sources that could have high SO_2 concentrations.") The USEPA further directed that "States with monitored or modeled SO_2 violations will need to recommend an appropriate nonattainment boundary that ... includes sources contributing to that violation." *Id.* at 35,570.

---

[3] Therefore, Portland is, at a minimum, a "larger" SO_2 source since the USEPA characterizes "larger sources" as those generating greater than or equal to 100 tons per year of SO_2. 75 Fed. Reg. 35,573.

States with a designated or redesignated nonattainment area must submit a State Implementation Plan (SIP) within 18 months of the designation pursuant to 42 U.S.C. § 7514(a). The SIP must provide for the attainment of the applicable NAAQS, 42 U.S.C. § 7502(c), which must occur as expeditiously as practicable but in no case later than five years from the effective date of the nonattainment designation (here, by August 2017). 42 U.S.C. § 7514a (a).

Given the magnitude of Portland's SO_2 emissions and the close proximity of the plant to New Jersey, it is unlikely that Warren County, New Jersey will timely attain the 1-hour SO_2 standard absent specific federal action and regulation of the Portland plant's SO_2 emissions under the statutorily prescribed time frames of Section 126 of the Act.

III. SECTION 126 OF THE CLEAN AIR ACT

As explained in the May 12, 2010 petition, Section 126(b) allows a state to petition the Administrator for a finding that a major source stationary source emits or would emit any air pollutant in violation of the prohibition in §110(a)(2)(D)(i)(I), which prohibits any source from contributing significantly to nonattainment in or interfering with maintenance of any primary or secondary NAAQ in any other State. 42 U.S.C. §§ 7426(b), 7410(a)(2)(D)(i)(I). The Administrator must make the requested finding or deny the petition within 60 days after receipt of the petition, and after a public hearing. 42 U.S.C. § 7426(b). This deadline is non-discretionary. *See, e.g., Sierra Club v. Thomas*, 870 F.2d 783, 791 (D.C. Cir. 1987). In the case of New Jersey's May 12, 2010 petition, a decision from the USEPA was due July 12, 2010. On this date, the USEPA extended by six months its statutorily-imposed sixty day deadline. 75 Fed. Reg. 39,633 (July 12, 2010). Therefore, the USEPA must act on the May 12, 2010 petition by January 12, 2011, at the latest.

Once the USEPA makes a finding under Section 126(b), Section 126(c) provides that the violating source shall not operate three months after a finding. 42 U.S.C. § 7426(c). The Administrator may allow the source to operate beyond three months only if the source complies with emission limitations and compliance schedules as directed by the Administrator. 42 U.S.C. § 7426(c). Such compliance must be brought about as expeditiously as practicable, and in no case later than three years after the date of the Administrator's finding.

IV. EVIDENCE OF ADDITIONAL SECTION 126 VIOLATIONS

The modeling NJDEP presented with its May 12, 2010 petition demonstrated that emissions from the Portland Plant alone significantly contribute to nonattainment and/or interfere with maintenance of the 24-hour and 3-hour SO_2 NAAQS in Knowlton Township, Warren County, New Jersey. NJDEP also found violations of the 24-hour $PM_{2.5}$ NAAQS in Knowlton Township due to Portland's emissions.

NJDEP conducted additional, comprehensive modeling of Portland's emissions based on the new 1-hour SO_2 standard. Not surprisingly, the modeling demonstrated greater number of violations of the 1-hour SO_2 NAAQS with a higher magnitude over a much larger area than

NJDEP previously found. Therefore, this modeling shows a measurable contribution from Portland's emissions to nonattainment in New Jersey, requiring the USEPA's finding of a Section 126 violation. 42 U.S.C. § 7426(b). *See* Table 1 (Exh. 1)

In its final rule, the USEPA identified AERMOD as appropriate for most modeling applications to support the new 1-hour SO2 NAAQS. However, the USEPA also indicated that "Appendix W allows flexibility to consider the use of alternative models on a case-by-case basis when an adequate demonstration can be made that the alternative model performs better than, or is more appropriate than, the preferred model for a particular application." 75 Fed. Reg. 35,560. NJDEP has already conducted a comprehensive study comparing the performance of AERMOD with CALPUFF to model the Portland's impacts on Warren County, New Jersey, and found that CALPUFF performed better and produced predictions of greater accuracy than AERMOD. *See* Validation Study, May 12, 2010 petition, Exhibit 12. Nevertheless, both models here show significant violations of the new 1-hour SO_2 standard in Knowlton Township, Warren County due to Portland's emissions without the addition of background SO_2 concentrations.

A trajectory analysis of the potential for SO_2 emissions from the Portland Power Plant to cause elevated 1-hour measurements at a distant NJDEP SO_2 monitor was also conducted. The trajectory analysis provided strong evidence that the high SO_2 concentrations measured at the distant monitor in Chester, New Jersey in 2008 and 2009 were due to emissions from Portland.

A. AERMOD Modeling

When modeling allowable SO_2 emissions, the maximum 99th percentile (4th highest) daily 1-hour concentration predicted was 1402 ug/m^3, over seven times the 1-hour SO_2 NAAQS of 196 ug/m^3. At a single receptor there was a maximum of 42 days in violation of the NAAQS and 46 days exceeding the NAAQS (i.e., at least one 1-hour concentration during the day above 196 ug/m^3).

In addition to modeling the allowable emissions from the Portland Plant, estimated actual emissions between July 1, 1993 and June 30, 1994 were also modeled. The maximum 99th percentile daily 1-hour concentration predicted was 467.3 ug/m^3, more than double the 1-hour NAAQS of 196 ug/m^3. At a single receptor there was a maximum of five days in violation of the NAAQS and nine days exceeding the NAAQS. The AERMOD modeling analysis is detailed in Exh. 2, "AERMOD Modeling Analysis of the 1-Hour Sulfur Dioxide Impacts Due to Emissions from the Portland Generating Station" (July 30, 2010).

B. CALPUFF Modeling

CALPUFF modeling was conducted for three different meteorology and emissions scenarios: 2002 meteorology/allowable emissions, 2002 meteorology/2002 actual emissions, and 2003 meteorology/allowable emissions. Violations of the 1-hour SO_2 standard were predicted in each scenario.

For the 2002 allowable emissions modeling, the maximum 99th percentile daily 1-hour concentration predicted was 3,455 ug/m^3, over seventeen times the 1-hour SO_2 NAAQS of 196 ug/m^3. At the receptor with the maximum design concentration, there were 35 violation days and 39 days exceeding the SO_2 NAAQS.

The 2002 actual emissions modeling predicted a maximum 99th percentile daily 1-hour predicted concentration of 2,194 ug/m^3, 10 times the 1-hour NAAQS. At the receptor with the maximum design concentration, there were 23 days violation days and 27 days exceeding the SO_2 NAAQS (i.e., at least one 1-hour concentrations during the day above 196 ug/m^3).

The 2003 allowable emissions modeling predicted a maximum 99th percentile daily 1-hour concentration of 2,468 ug/m^3, over twelve times the 1-hour SO_2 NAAQS of 196 ug/m^3. At the receptor with the maximum design concentration there were 59 violation days and 63 days exceeding the 1-hour SO_2 NAAQS.).The area of violation in New Jersey includes most of Warren County and portions of Sussex, Morris and Hunterdon Counties.

A description of the CALPUFF modeling analysis summarized above is contained in Exh. 3, "CALPUFF Predictions of the 1-Hour Sulfur Dioxide Impacts due to Emissions from the Portland Generating Station" (August 25, 2010).

C. Trajectory Analysis

Two multi-hour high SO_2 episodes occurred at the Chester ambient air monitor in 2008 and 2009. Since the Chester monitor is located in a rural, non-industrial area, and there are no significant sources, see 40 CFR Part 52.21, of SO_2 emissions in New Jersey between the monitor and the Portland Plant, a trajectory analysis was conducted to determine the cause of elevated SO_2 concentrations at that location. The trajectory analysis indicated a high potential for the SO_2 emissions from the Portland Plant to be the cause of the elevated 1-hour measurements at the NJDEP Chester SO_2 monitor. The monitor is located approximately 21 miles east-southeast of the Portland Plant. Forward and backward in time air trajectories were examined. The SO_2 concentrations measured during two of the hours in the 2008 episode exceeded the 1-hour SO_2 NAAQS.

The trajectory analysis was conducted with HYSPLIT Trajectory Model and the NAM (Eta) 12 km forecast meteorological data. Analysis of both the forward and backward in time trajectories clearly and strongly suggest the Portland Plant as the origin of the SO_2 that caused the elevated SO_2 concentrations at the Chester monitor. The emissions from Portland Plant were 85% of their allowable SO_2 emission rate during one of the episodes and 55% of the allowable during the second episode. The trajectory analysis is summarized in Exh. 4, "Trajectory Analysis of High Sulfur Dioxide Episodes at the Chester, NJ Monitor" (July 30, 2010)

D The USEPA Should Require Air Pollution Control Technology at Portland To Remedy the Violations

As with the May 12, 2010 petition, New Jersey petitions the USEPA to directly regulate the Portland Plant to abate the significant contribution to nonattainment and interference with New Jersey's maintenance of, the more stringent 1-hour SO_2 NAAQS. Appropriate air pollution control technology at the Portland Plant, such as scrubbers, is expected to provide for the statutorily required abatement. Such control technology must be installed within, at a minimum, three years. *See* CAA Section 126(c), 42 U.S.C. § 7426(c); *see also* 40 C.F.R. §§ 50.4, -.5 and -.7. As an alternate means to address these violations, the USEPA could impose emission limits no less stringent than New Jersey's Reasonable Available Control Technology rules set forth at N.J.A.C. 7:27-1.1 et seq. The USEPA must further require compliance with emission limitations and compliance schedules if the agency determines to permit the continued operation of the plant beyond the three-month statutory period. NJDEP is interested and willing to discuss remedial options with the USEPA to address both the May 12, 2010 petition and this supplemental petition.

Considering the single source impact and magnitude of the SO_2 NAAQS violation from the Portland Plant, timely resolution is imperative and can only be achieved by USEPA action through this petition. Section 126 specifically outlines an expeditious timeframe and mandates specific resolutions. This timeframe for emission reductions to occur far exceeds any potential reductions that may occur from future federal rule actions or the State Implementation Plan process, whose attainment date for the new 1-hour SO_2 NAAQS is approximately 2017. Similarly, the USEPA should not defer action on New Jersey's petition based on future USEPA rulemakings such as the recently proposed transport rule, which is not expected to be finalized until June 2011 and may not result in pollution controls on the Portland plant, *see* 75 Fed. Reg. 45,210 (August 2, 2010), or a future MACT standard for electric generating units, which has yet to be proposed.

V. CONCLUSION

New Jersey's supplemental Section 126 petition provides evidence of significant violations at the Portland Plant in addition to the violations demonstrated in New Jersey's May 12, 2010 petition. Both petitions show that allowable and actual emissions from this large source alone--without background emissions--significantly contribute to nonattainment and/or interfere with maintenance of NAAQS in New Jersey. *See* 42 U.S.C. § 7426(b).

In the May 12, 2010 petition, NJDEP showed that its CALPUFF modeling demonstrates that emissions from the Portland Plant alone significantly contribute to nonattainment and/or interfere with maintenance of the pre-existing 24-hour and 3-hour SO_2 NAAQS in Knowlton Township, Warren County, New Jersey. NJDEP's CALPUFF and AERMOD modeling based on the new, more stringent 1-hour SO_2 NAAQS shows far greater exceedances of the SO_2 NAAQS in Knowlton Township, New Jersey. The trajectory analysis demonstrates that at distances over 20 miles from the Plant, emissions from Portland are capable of causing monitored SO_2 concentrations above the 1-hour NAAQS. Therefore, and for all of reasons presented herein and in the May 12, 2010 petition, New Jersey respectfully requests that the

USEPA grant these Petitions and directly regulate the Portland Plant to remedy the Clean Air Act violations and to address the public health and welfare concerns. New Jersey specifically requests the installation of appropriate air pollution controls and/or the imposition of more stringent emission rates at Portland.

Dated:

Respectfully submitted,

BOB MARTIN
Commissioner, New Jersey
Department of Environmental Protection